Claims

1. An optical receiver module with digital adjustment includes an optical-electrical converter circuit, a voltage output circuit of optical power detection, and a bias voltage adjusting circuit that comprises a DC/DC voltage boost circuit; it is further included that,

a digital adjusting unit digitally adjusting the DC/DC voltage boost circuit to output different voltage;

an A/D converter converting both an analog voltage of a measured working temperature of an optical detector into a digital data and an analog voltage of a measured optical power into a digital data, which are used for controlling the digital adjustment circuit, monitoring a bias voltage of the optical detector, making temperature compensation and dark current compensation at different temperature;

a memory storing parameters of the optical receiver module as a basis for adjustment.

2. The optical receiver module with digital adjustment according to Claim 1, wherein the digital adjusting unit is a D/A converter.

3. The optical receiver module with digital adjustment according to Claim 1, wherein the digital adjusting unit is a digital potentiometer.

4. An adjusting method for an optical receiver module with digital adjustment, comprising,

A. setting a memory, storing digital values for digital-analog conversion (DA) of a D/A converter of the optical receiver module during dark current zero-adjustment and optical detector bias voltage adjustment in the memory;

storing digital values (AD) converted through an A/D converter during standardizing optical power detection and temperature measurement;

B. reading out the DA value during dark current zero-adjustment and optical detector bias voltage adjustment from the memory and loading to a digital adjusting unit;

C. comparing the optical power AD value stored in the memory during standardizing optical power detection with a detected optical power AD value

converted by the A/D converter and sending a result to a CPU in the optical receiver module for linear interpolation;

D. comparing the temperature AD value stored in the memory during temperature measurement with a measured temperature AD value converted by the A/D converter, and sending a result to the CPU;

E. the CPU detecting whether dark current compensation at current temperature satisfies preset temperature compensation requirement, if it is, keeping the DA value, otherwise changing the DA value in step B to adjust further dark current compensation;

F. the CPU detecting whether the bias voltage of the optical detector at current temperature satisfies preset temperature compensation requirement, if it is, keeping said DA value, otherwise changing the DA value in step B to adjust further voltage of the optical detector.

5. The method according to Claim 4, in step A storing DA values during dark current zero-adjustment comprises:

A1. setting a DA value;

A2. converting an analog output Optical Power Measurement (OPM) of an operation amplifier for optical power detection into a digital data by the A/D converter, and then sending to the CPU;

A3. the CPU detecting whether the digital data satisfies dark current zero-adjustment requirement; if it is, storing the set DA value in the memory, otherwise returning to step A1.

6. The method according to Claim 4, in step A storing DA values during optical detector bias voltage adjustment comprises:

A4. setting a DA value;

A5. converting an optical detector bias voltage by the A/D converter into a digital data, and then sending to the CPU;

A6. the CPU detecting whether the digital data satisfies the optical detector bias voltage requirement; if it is, storing the set DA value in the memory, otherwise, returning to step A4.

7. The method according to Claim 4, in step A storing AD values during standardizing optical power detection comprises:

A7. inputting a standard light source;

A8. determining a corresponding AD values with 0.5 dBm optical power space within optical power detection scope, and storing the determined AD values in the memory.

8. The method according to Claim 4, in step A storing AD values during standardizing temperature measurement comprises:

A9. calculating corresponding relationship between a temperature and the AD value;

A10. determining a corresponding AD values with 5℃space within a certain temperature scope, storing the determined AD values in the memory.

9. The method according to Claim 4, further comprises, in the memory storing parameters of the optical receiver module including type of the optical receiver module, production date, receiving sensitivity, overload point and maximum bias voltage of the optical detector during test.

10. The method according to Claim 4, further comprises, reading out a digital data of bias voltage of the optical detector converted by an A/D converter through the CPU, and then real-timely displaying.